

## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
22 January 2004 (22.01.2004)

PCT

(10) International Publication Number  
**WO 2004/007060 A3**

- (51) International Patent Classification<sup>7</sup>: **B01D 67/00**, 71/36, 69/02
- (21) International Application Number: PCT/US2003/021438
- (22) International Filing Date: 9 July 2003 (09.07.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
60/394,865 11 July 2002 (11.07.2002) US
- (71) Applicant (for all designated States except US): **PALL CORPORATION** [US/US]; 2200 Northern Boulevard, East Hills, NY 11548-1209 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **DOUCOURE**, Abdoulaye [US/US]; 161 Coach Lane, Levittown, NY 11756 (US). **SALINARO, Richard, F.** [US/US]; 19 Burnside Drive, Hastings on Hudson, NY 10706 (US). **MIZUNO, Yoshiki** [JP/JP]; Kannondei 1-34-16-203 Tsukuba, Ibaraki, Ibaraki 305-0856 (JP).
- (74) Agent: **JAY, Jeremy, M.**; Leydig, Voit & Mayer, 700 Thirteenth Street, NW, Suite 300, Washington, DC 20005 (US).
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:**
- with international search report
  - before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- (88) Date of publication of the international search report:  
4 November 2004
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: UV TREATED MEMBRANES

(57) Abstract: Non-coherent UV-treated porous halopolymer membranes are disclosed.

WO 2004/007060 A3

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 03/21438

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B01D67/00 B01D71/36 B01D69/02

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B01D C08J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 362 525 A (M.NISHII ET AL) 8 November 1994 (1994-11-08)  column 3, lines 9-25; example 1	1, 4, 7, 8, 12, 13, 19, 20, 22, 29, 30
A	US 5 635 257 A (M.NISHII ET AL) 3 June 1997 (1997-06-03)  claims; examples	1, 4, 7, 8, 12, 13, 19, 20, 22, 29, 30
A	US 5 320 789 A (M.NISHII ET AL) 14 June 1994 (1994-06-14)  table 1	1, 4, 7, 8, 12, 13, 19, 20, 22, 29, 30
	----- -/-	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \* & \* document member of the same patent family

Date of the actual completion of the international search

10 September 2004

Date of mailing of the international search report

20/09/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Cordero Alvarez, M

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 03/21438

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 232 600 A (P.J.DEGEN ET AL) 3 August 1993 (1993-08-03) claim 1	1, 3
A	US 4 925 572 A (D.B.PALL) 15 May 1990 (1990-05-15) cited in the application claims	1
A	US 5 789 755 A (J.BENDER) 4 August 1998 (1998-08-04) cited in the application claim 17	26

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 03/21438

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5362525	A	08-11-1994	JP 3176740 B2 JP 6172560 A	18-06-2001 21-06-1994
US 5635257	A	03-06-1997	JP 2999365 B2 JP 7304888 A	17-01-2000 21-11-1995
US 5320789	A	14-06-1994	JP 3174147 B2 JP 5339396 A JP 2076091 C JP 5125208 A JP 7108944 B	11-06-2001 21-12-1993 25-07-1996 21-05-1993 22-11-1995
US 5232600	A	03-08-1993	US 4954256 A CA 1338233 C DE 69010766 D1 DE 69010766 T2 EP 0398601 A1 GB 2233252 A ,B JP 2580062 B2 JP 3101817 A	04-09-1990 09-04-1996 25-08-1994 09-03-1995 22-11-1990 09-01-1991 12-02-1997 26-04-1991
US 4925572	A	15-05-1990	US 4976861 A AT 116864 T AT 224744 T AU 642601 B2 AU 2042092 A AU 624095 B2 AU 2623288 A BR 8807759 A CA 1325974 C CN 1033942 A ,B CN 1095308 A CN 1098945 A DE 3852746 D1 DE 3852746 T2 DE 3856540 D1 DE 3856540 T2 DE 313348 T1 EP 1238694 A2 EP 0313348 A2 EP 0620017 A2 ES 2067476 T3 ES 2183827 T3 GB 2211755 A ,B GB 2242277 A ,B GB 2243794 A ,B GB 2248193 A ,B GB 2250690 A ,B GR 3015682 T3 IL 106893 A IN 172156 A1 JP 2555722 B2 JP 3502094 T KR 9505186 B1 NO 901735 A NO 994959 A NZ 226628 A WO 8903717 A1	11-12-1990 15-01-1995 15-10-2002 21-10-1993 17-09-1992 04-06-1992 23-05-1989 07-08-1990 11-01-1994 19-07-1989 23-11-1994 22-02-1995 23-02-1995 01-06-1995 31-10-2002 05-06-2003 25-02-1993 11-09-2002 26-04-1989 19-10-1994 01-04-1995 01-04-2003 12-07-1989 25-09-1991 13-11-1991 01-04-1992 17-06-1992 31-07-1995 14-05-1996 17-04-1993 20-11-1996 16-05-1991 19-05-1995 19-04-1990 19-04-1990 25-06-1991 05-05-1989

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 03/21438

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4925572	A	US 4923620 A ZA 8807847 A	08-05-1990 26-07-1989
US 5789755	A	04-08-1998 AU 720629 B2 AU 4236997 A CA 2263867 A1 EP 0923418 A1 WO 9808626 A1 US 6028316 A	08-06-2000 19-03-1998 05-03-1998 23-06-1999 05-03-1998 22-02-2000